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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,192

11/21/2003

Seung-Kwon Baek

5649-1185

2998

20792 7590 12/11/2008
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EXAMINER

MALEK, LEILA

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

12/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/719,192	BAEK ET AL.	
	Examiner	Art Unit	
	LEILA MALEK	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8 and 12 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendments received on 08/26/2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US 7,065,036), in view of Schmidl et al. (hereafter, referred as Schmidl) (US 5,732,113).

As to claim 8, Ryan discloses a method of transforming an OFDM signal (see Figs. 4 and 5) by a fast Fourier transform (FFT) processor (see Fig. 5, block 511, and column 9, lines 28-30), the OFDM signal having a symbol (see Fig. 4), the symbol including a first long preamble 407, a second long preamble 409 and first data (data 1) , the first and second long preambles respectively having a sequence of N-samples, the method comprising: storing the first long preamble and the second long preamble in a buffer (see Fig. 5, block 510); reading the long preambles from the buffer (see column 9, line 8) transforming the long preambles by a fast Fourier transform, respectively, into a third preamble and a fourth preamble (see column 9, lines 28-32); transforming second data that is received by the FFT processor after the first data is buffered, and the first data, respectively (see column 9, lines 28-32) into third data when the first and

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second long preambles are transformed into the third and fourth preambles; and finishing the fast Fourier transform method when the symbol is a final symbol, and continuing the FFT processing when the symbol is not the final symbol (see column 9, lines 28-32, where Ryan discloses that the whole data has been transformed by FFT unit). Ryan discloses all the subject matters claimed in claim 8, except for storing the long preambles in first, second, third and fourth memories in sequence as the OFDM signal is received; reading the preambles stored in the memories in response to an end point of the second long preamble being detected. Although Ryan does not disclose storing the long preambles in first, second, third and fourth memories in sequence as the OFDM signal is received, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ryan and decompose the received signal and save it on multiple memories to reduce the size of each memory (buffer) unit. Ryan does not disclose that the FFT unit does not start the processing until the end point of the second long preamble being detected, however, in view of lack of any description by the Applicant on why the FFT processing does not occur until the end point of second long preamble has been detected, Examiner states that it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ryan and does not start the FFT processing until the end point of the second long preamble has been detected to meet the design requirements of the system. Ryan also does not disclose storing in sequence the transformed preambles in the first memory and the second memory and storing the third data in the memories in sequence, and outputting the third data stored in the memories. Schmidl, in the same field of endeavor, shows a signal converter 120

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(see Fig. 5) comprising a memory device 122 for storing data and preambles. Schmidl further discloses sending the preambles to FFT processing unit 126 and storing the transformed preambles back in the memory in sequence (see column 20 lines 8-12), and storing the third data in the memories in sequence, and outputting the third data stored in the memories (see column 16, lines 3-36). Schmidl does not disclose saving the transformed preambles in the first and second memories, however, it would have been obvious to one of ordinary skill in the art at the time of invention to break down the transformed preambles and save them on two memories to reduce the size of the memories in the system. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Ryan as suggested by Schmidl and store the transformed preambles and data to provide fast timing acquisition of the received signal and also enable synchronization to a burst signal for proper reception of the burst data frame (see column 16, lines 15-17).

As to claim 12, Ryan and Schmidl do not disclose that the first data is delayed data by $N/2$, however, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ryan and Schmidl to delay the signal in order to compensate for the FFT processing time.

Allowable Subject Matter

3. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEILA MALEK whose telephone number is (571)272-8731. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leila Malek
Examiner
Art Unit 2611

/L. M./
/Leila Malek/
Examiner, Art Unit 2611

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/Mohammad H Ghayour/

Supervisory Patent Examiner, Art Unit 2611